(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 17 June 2004 (17.06.2004)

PCT

(10) International Publication Number WO 2004/050724 A1

- (51) International Patent Classification7: C08F 10/08, 4/64
- (21) International Application Number:

PCT/EP2003/012236

(22) International Filing Date:

3 November 2003 (03.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02080120.5

4 December 2002 (04.12.2002) E

60/431,803

9 December 2002 (09.12.2002) US

- (71) Applicant (for all designated States except US): BASELL POLYOLEFINE GMBH [DE/DE]; Brühler Strasse 60, 50389 Wesseling (DE).
- (72) Inventors; and

WO 2004/050724 A1

- (75) Inventors/Applicants (for US only): RESCONI, Luigi [IT/IT]; Via Arianuova, 56/B, I-44100 Ferrara (IT). CAS-CIO INGURGIO, Antonio [IT/IT]; Via Valdemone 57, I-90100 Palermo (IT).
- (74) Agent: COLUCCI, Giuseppe; Basell Poliolefine Italia S.p.A., Intellectual Property, P.le G. Donegani, 12, I-44100 Ferrara (IT).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

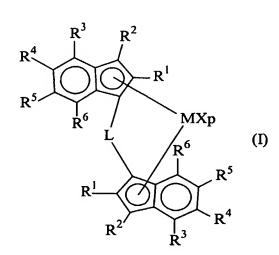
of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR PREPARING 1-BUTENE POLYMERS



(57) Abstract: A process for obtaining 1-butene polymers optionally containing up to 30% by mol of ethylene, propylene or an alpha-olefin of formula CH_2 =CHZ, wherein Z is a C_3 - C_{10} alkyl group s, comprising the step of contacting under polymerization conditions 1-butene and optionally ethylene, propylene or said alpha-olefin, in the presence of a catalyst system obtainable by contacting: a) a metallocene compound of formula (I): R³ R²R⁴ 0 R~ Rs MXp LLR⁶ R⁵ R' O R² R⁴(I) wherein: M is an atom of a transition metal belonging to group 3, 4, 5, 6 or to the lanthanide or actinide groups in the Periodic Table of the Elements; p is an integer from 0 to 3; X, is a hydrogen atom, a halogen atom, or a hydrocarbon group; R1 is a hydrocarbon group; RZ, R³ and R⁶ are hydrogen atoms or hydrocarbon groups: R⁴ and R5 join to form a condensed saturated or unsaturaded 4-7 membered ring; and L is a divalent bridging group; and b) an alumoxane or a compound able to form an alkylmetallocene cation.